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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,225	02/04/2005	Joannes Leonard Linden	310.1040	3797
20311 7590 02/05/2010 LUCAS & MERCANTI, LLP 475 PARK AVENUE SOUTH 15TH FLOOR NEW YORK, NY 10016				
EXAMINER				
LIGHTFOOT, ELENA TSOY				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
02/05/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@lmiplaw.com

### Office Action Summary

**Application No.**

10/501,225

**Applicant(s)**

LINDEN ET AL.

**Examiner**

ELENA Tsoy LIGHTFOOT

**Art Unit**

1792

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-5 and 8-35 is/are pending in the application.
- 4a) Of the above claim(s) 11, 13-16 and 23-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 8-10, 12, 17-22, 34 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

Amendment filed on December 30, 2009 has been entered. Claims 2, and 6-7 have been cancelled. New claims 34 and 35 have been added. Claims 1, 3-5, and 8-35 are pending in the application. Claims 11, 13-16 and 23-33 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention and species.

Claims examined on the merits are 1, 3-5, 8-10, 12, 17-22 and 34-35.

***Status Identifiers***

Status Identifiers "(Previously Presented)" for withdrawn Claims 32-33 should be changed to "(Withdrawn)".

***Specification***

1. The amendment to the specification filed on December 30, 2009 has been entered as correcting minor errors. Objection to the disclosure because of the informalities has been withdrawn.
2. A substitute specification is required pursuant to 37 CFR 1.125(a) because it does not have BRIEF DESCRIPTION OF THE DRAWING(S).

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive

characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

3. It is recommended to change the layout of the specification.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if

the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Claim Objections***

4. Objection to claims 18-19 because of the informalities has been withdrawn due to amendment.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Rejection of claims 1, 3-5, 8-10, 12, and 17-22 under 35 U.S.C. 103(a) as being unpatentable over Yamada et al '927 in view of Saito et al (US 5021114) has been withdrawn because the Examiner agrees with Applicants that neither Yamada et al nor Saito et al teaches pulsed plasma.
7. Claims 1, 3-5, 8-10, 12, 17-22 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al '927 in view of Saito et al (US 5021114), further in view of Otto et al (US 5,643,638).

Yamada et al in view of Saito et al is applied here for the same reasons as set forth in paragraph 9 of the Office Action mailed on 10/01/2009.

Yamada et al further teaches that the temperature of the substrate is maintained in the range from 0°C to 350°C, preferably from 20°C to 200°C (See column 10, lines

33-35). Yamada et al in view of Saito et al fails to teach the use of pulsed plasma (Claim 1).

Otto et al teaches that plasma pulse CVD methods are known and are described, for example, in the article of Kersten et al entitled "Thick Coatings of Doped Synthetic Silica Glass by Plasma Impulse CVD" published in the journal of the Ceramic Society of Japan 99 (10), pages 894 to 902 (1991). In these methods, the electromagnetic radiation which excites the plasma is supplied in a *pulsed* manner for continuous flow of the coating gases. With each pulse, a thin layer (typically approximately 1 nm) is deposited on the substrate. Even substrates which are not stable to temperature can be deposited during a pulse of high power because a pulse interval follows each power pulse. In this way, especially high coating rates are possible without significant temperature loading of the substrate. See column 2, lines 44-58. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used pulsed plasma in Yamada et al in view of Saito et al with the expectation of providing the desired high coating rates without significant temperature loading of the substrate, as taught by Otto et al.

As to claims 34-35, Otto et al teaches that in a plasma pulse CVD method, a change of the power, which is supplied for generating and maintaining the plasma, is not decisive for producing a deposition layer. This is in contrast to the state of the art for continuous methods. Instead, the amplitude and duration of the power pulse as well as the duration of the pulse interval are decisive for the production of a coating layer. The mean power can be adjusted in a simple manner for a plasma pulse CVD method via

the length of the pulse interval and/or pulse width and/or the magnitude of the pulse amplitude. (See column 2, line 59 to column 3, line 59). By using the plasma pulse CVD method, elementary layers (single layers) of different composition can be deposited (See column 3, lines 27-29). The plasma pulse CVD method can be carried out with alternating current voltage pulses having a frequency between approximately 50 kHz and 300 GHz (See column 5, lines 61-63).

In other words, amplitude and duration of the power pulse as well as duration of the pulse interval (i.e. including duty cycle which is ratio of the pulse duration to the pulse interval) are result-effective parameters in pulsed CVD process. It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Moreover, it is, in general, a matter of prima facie obviousness for one of ordinary skill in the art to determine the optimum process conditions, contingent upon the desired product.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant pulse frequency and a duty cycle parameters (including those of claimed invention) in Yamada et al in view of Otto et al through routine experimentation depending on particular application in the absence of showing of criticality.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 3-5, 8-10, 12, 17-22 and 34-35 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENA Tsoy LIGHTFOOT whose telephone number is (571)272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy Lightfoot, Ph.D.  
Primary Examiner  
Art Unit 1792

February 3, 2010

/Elena Tsoy Lightfoot/